Vedant Paithankar

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WORK EXPERIENCE

Embedded Software Engineer

Munich Electrification GmbH [01/2024 – Current]

City: Munich | **Country:** Germany

- Implemented a pressure sensor driver for the Infineon Aurix T37x platform in C++ to receive the values from the CAN interface.
- Designed a python script to calculate current measurement accuracy for battery management system.
- Proficient with Continuous Integration and Delivery tools such as GIT, Jira, Confluence, and Bitbucket
- Collaborated with 10+ colleagues in an agile environment following V-model for software development.
- Debugged application level issues with Trace32 and Lauterbach debugger

Embedded Software Intern

Robert Bosch Gmbh [10/2022 – 10/2023]

City: Stuttgart | **Country:** Germany

- Optimized system boot-up time by 20% and ported u-boot and Linux filesystem to custom hardware.
- Developed an endpoint based C application on Arm Cortex- A72 Linux core and Arm Cortex-R5F RTOS core to achieve Inter Processor Communication.
- Built an intrusion detection system on TI Jacinto 7 to continuously monitor cyber threats and prevent malicious attacks on communication channel for IPC.
- Configured u-boot, BSP layer for TI Jacinto 7, and integrated open source Software Defined Vehicle stack using Yocto build.
- Designed a hardware specific RAUC layer to update over-the-air firmware with 2 symmetric root filesystems (A/B) and created bash scripts for customized Linux booting.

Embedded Software Engineer

Tata Elxsi Ltd [09/2019 – 08/2021]

Country: India

- Proficient with multi-threading embedded software application development in C/C++ on Linux environment
- Established a user-space USB driver communication on the Nvidia Jetson TX2 to enable USB Plug and Play functionality.
- Developed a firmware update shell script to manage 2 firmware on eMMC Memory.
- Implemented GPIO and I2C microcontroller middleware drivers to test Camera, Motor and IR sensors at device bootup.
- Proficient with C++11/14 object oriented programming concepts, POSIX threads, STL, boost, filesystems, and chrono libraries.
- Debugged firmware level issues and performed software testing to validate Jetson TX2 software architecture and design.
- Mentored 2+ interns to understand embedded software design and development in a team.

EDUCATION AND TRAINING

Master of Engineering - Electrical Engineering and Embedded Systems

Ravensburg Weingarten University of Applied Sciences [2021 – 2023]

Post Graduate Diploma - Embedded Systems and Design

Centre for Development of Advanced Computing [2019]

Bachelor of Engineering - Electronics & Telecommunication

Savitribai Phule Pune University [2014 – 2018]

SKILLS

C / C++ / Embedded C / Python

Hardware Skills

NVIDIA Jetson / ESP8266 / ESP32 / Raspberry Pi / TI Jacinto 7 / AVR32 / Arm Cortex M3 / STM32

Communication Protocols and Operating System

TCP / IP / UART / USB / CAN / SPI / I2C / FreeRTOS / Linux / NFC / Windows

Development and Debugging Tools

GIT / Visual Studio Code / Logic Analyzer / Jupyter Notebook / Espressif ESP32 (ESP-IDF and Arduino) / Eclipse / ST M32CubeMX / vim / Oscilloscope / Yocto / Makefile / ISO262 / ISO21434

PROJECTS

[02/2023 – 03/2023]

Custom Bootloader for STM32F446RE Nucleo Board

- Created a custom bootloader on Sector 0-1 of Flash memory to achieve erase operations such as sector erase, mass erase, and critical bootloader functionalities on flash memory such as read, write, and reading option bytes.

[05/2022 – 06/2022]

Simulation of Urban Mobility

- Established a TCP/IP socket communication between ESP32 client and SUMO server to send the real time sensor data to the SUMO simulator and maintained synchronous communication between hardware sensors in a FreeRTOS environment

[04/2019 – 05/2019]

Advanced Driver Assistance System (ADAS) using CAN

- Engineered CAN interface between two STM32 Microcontroller nodes to transmit sensor data and achieved high speed communication approximately 8 MHz through SPI to configure CAN Transceiver's with master nodes.

LANGUAGE SKILLS

Other language(s): English (Full Professional Proficiency), German (Elementary Proficiency A2)